UTILITY ADVISORY BOARD

Thursday, January 17, 2013
8:00 a.m.

Cascade Township – Wisner Center
2870 Jack Smith
(Take 28th 1 block east of Thornhills, then 1 block south on Jack Smith)

AGENDA

1. Approval of Minutes – December 20, 2012 (attached)

2. Public Comment on Agenda Items

3. Transformation Update - Competitive Assessment (attached)
   a. Executive Summary
   b. Proposal to complete remaining phases

4. Sewer Use Ordinance Update

5. Quarterly Financial Reports
   a. Operational Graphs (Q2-FY13)
      - Treated Flow (SDS & WSS) (attached)
      - Treated Flow Compared to Rainfall & Temperature (SDS & WSS) (attached)
      - YTD Billed Flow (SDS & WSS) (attached)
   b. Financial Reports (Q2-FY13)
      - Sewage Disposal System (SDS) (to be distributed at meeting)
      - Water Supply System (WSS) (to be distributed at meeting)
   c. ACSET/ICB Report (Q4-CY12)
      - No activity; funds exhausted 07/09/12; 2012 summary provided 10/18/12

6. Budget Preparation Update

7. Contract Awards, Year to Date 2012 (attached)

8. Updates:
   a. Processing Delinquent Accounts (Lien Process)
   b. Customer Information System
      - Billing issues

9. Items from Members

10. Next Meeting – Thursday, February 21 - Where?

11. Adjournment

Utility Advisory Board
December 20, 2012

1. **Call to Order:**
   Chair Eric DeLong called the meeting to order at 8:00 a.m. at the Arnie's Restaurant on Leonard Street in Grand Rapids.

2. **Introduction**
   Geri Eye was introduced as the new Utility Finance Officer who will be working with Linda Wagenmaker on financials and the rate study.

3. **Attendance:**

Members Attending:
Bill Cousins
Eric DeLong
Brian Donovan
George Haga
Wayne Jernberg
Mike Lunn
Pam Ritsema
Ed Robinette
Chuck Schroeder
Breese Stam (alternate)
Joellen Thompson
Toby VanEss
Linda Wagenmaker (alternate)
Ron Woods

Others in Attendance:
John Allen
Geri Eye
Steve Kepley
Eileen Pierce

Members Absent:
Scott Buhrer
Mark De Clercq
Cathy VanderMeulen
Josh Westgate

4. **Approval of Minutes**:

Motion 12-15 : Bill Cousins, supported by Ron Woods, moved to approve the minutes of the November 15, 2012, meeting of the Utility Advisory Board as presented. Motion carried.

5. **Public Comment:**
   There was no comment from the public.

6. **Transformation Update**

HVAC Audit at LMFP and Wastewater Facilities – Mike Lunn reported that this project was completed with the funds provided from the Green Energy Block rebate. Mr. Lunn asked for approval to move ahead with an ESCO project. He discussed the different

types of lighting and why the old HVAC needs to be a priority. He noted that the brightness of two lights is like the sun. He discussed the various types of projects proposed for both the Wastewater and the Water Treatment Plant. UAB members granted approval by general consensus. Mr. Lunn noted that he will be engaging the Engineering Department on these projects.

Ron Woods asked how we went from 150HP to 40HP blowers. Mr. Lunn explained that the new blowers are faster and more efficient even though they are smaller and use less energy.

George Haga noted that they did similar work in Ada Township and he thinks it is a good program.

Competitive Assessment Report - Pam Ritsema gave a brief overview of the next phase which will include a workforce analysis to align staffing with the work that needs to be done. Eric DeLong noted that this work will create the framework for going forward. A report from EMA will be provided at the next meeting.

Eric DeLong noted that the City Commission was complimentary of the partners' work on rates. We're on a good path; there are no guarantees, but it looks good.

7. **Sewer Use Ordinance Update**

Mike Lunn reviewed the major changes in the ordinance. He noted that BOD is important because it will allow us to add more users without an expansion of the plant. The dollars saved should be reinvested to upgrade the plant. Staff will be meeting with representatives from several of the breweries soon. More users means the cost gets spread over more volume so there is an impact on surcharge revenues.

Bill Cousins asked about an effect on the airport. Mike Lunn doesn't know what the airport is planning to do. The plant can take concentrated glycol but not all the stormwater they have.

Mr. Lunn noted the language on roof drains. We have been working with customers to get these disconnected. Task 35 in the Rate Study is the footing drain opt-out. One other big change that was noted was the regulation on dentists.

George Haga asked about the timeline for ordinance adoption. Mr. Lunn indicated that DEQ is to approve. There will be a joint notice sent out and a public comment period, then it will go to the Grand Rapids City Commission probably in March or April.

Eric DeLong noted that the Ordinance should be reviewed in more detail at the next meeting. He also asked that Mike Lunn bring a timeline to the January meeting.

8. **Discussion of Budget Ideas for FY2014**

Eric DeLong asked for input or suggestions on the upcoming budget preparation. Ed Robinette noted the control of sprawl and that he would like to see growth.

It was decided that rudimentary capital plan should be brought to the next meeting. Mike Lunn will place a .pdf on the website. Members should bring in their capital projects.

A question was raised as to whether it was time to think about a holiday from high fees that limit development. Eric DeLong noted that he still believes in the ideas that the partnership was founded on. He acknowledged that fees are a deterrent.

Mr. DeLong noted that he talked to the Right Place, Inc., about the impact of a milk factory. He will talk to Dick Wendt. He asked how many there are that could be hooked up. It is important to know what market there is in the customer community for these hook-ups. Ed Robinette indicated that they could hook up the whole Township. Bill Cousins reported that they waived their connection fee in 2010 and got 15. He feels we should require hook ups; they had to go to court with some of these.

9. **Contract Awards for November, 2012**
Members were referred to the report provided in the meeting materials. There was no discussion.

10. **Updates**

Processing Delinquent Accounts - Pam Ritsema referred members to the information provided in the meeting materials. She described the high level process map. The process for sending letters didn't happen throughout the year. The areas where there are problems in the process were discussed in more detail. Ms. Ritsema noted that there are opportunities for Standard Operating Procedures, training, and working with the customer communities. It was noted that the County pays communities on May 1. Eric DeLong requested a future state map for the messy area. Bill Cousins will work directly with Ms. Ritsema on the issues he had with this process.

Customer Information System (CIS) - Wayne Jernberg reported that final acceptance will not be until after the first of the year. Customer community access for training will also be done after the first of the year. It was noted that early in the year is good for customer community staff.

Eric DeLong noted that we have used the Plan-Do-Check-Act cycle on three customer billing issues. Some affect all and some just a few of the communities. One will involve a credit (refund) to all customer communities. Another involves under billing, and we are trying to figure out what to do on this one yet. We should have more information on these in January. Mr. DeLong applauded staff for bringing these issues forward.

Bill Cousins asked if monthly billing will be looked at any further. Wayne Jernberg indicated that we have a plan to convert all commercial to monthly. Pam Ritsema added that the long-term goal is monthly billing for all.

11. **2013 Meeting Schedule**

Motion 12-16 – Bill Cousins, supported by Ron Woods, moved to approve the 2013 Meeting Schedule as presented. Motion carried.

12. **Items from Members**

Toby VanEss reported that Tallmadge is in court on an issue. A resident indicated the cost was too high to connect so they put in a drain field without a permit. They have 12 months to hook up.

Eric thanks everyone for a good year of partnership and wished everyone a happy holiday season.

13. **Next Meeting:**

The next meeting will be held on January 17, at 8:00 a.m., at Cascade Charter Township.

14. **Adjournment**

The meeting was adjourned.

/nlm

MEMORANDUM
CITY OF GRAND RAPIDS

DATE: January 11, 2013

TO: Utility Advisory Board

FROM: Pam Ritsema, Managing Director Enterprise Services

SUBJECT: Competitive Assessment and Gap Analysis

Several months ago UAB approved a recommendation to hire EMA to conduct a baseline competitive assessment and gap analysis of the operational and maintenance activities within Water Production, Wastewater Treatment, Field Operations, Customer Service and administrative and back office procedures. The baseline assessment is based on analysis of Grand Rapids implementation of the following best practice strategies:

- Total Productive Operations
- Planned Maintenance
- Less Attended Facilities
- Workforce Flexibility and Interdependence
- Technology as Strategy
- Organization as Strategy
- Customer Service
- Assets as an investment

Work has been completed and a report submitted. EMA has also submitted a proposal for the remaining phases of the project. The Executive Summary of the report and the proposal to complete the remaining phases of the project are attached.

The assessment identified several areas for improvement. Craig Yokopenic, Executive Vice President of EMA, Inc, will be presenting results of the analysis at the January 17 meeting. Full copies of the report will also be available.

1 EXECUTIVE SUMMARY

The City of Grand Rapids Enterprise Services Department is performing an operational assessment to identify opportunities to improve the effectiveness and efficiency of its operations. The first step in this roadmap is to complete a baseline assessment of current operations, and then prioritize follow up initiatives designed to capture improvements going forward.

The following assessment is intended to identify areas where opportunities for improvement exist. While many of the current practices are performed well they are not all captured in this document.

The assessment uses a practices based metrics approach. That is, the work practices currently in place in Enterprise Services will be assessed against recognized best work practices. "Best practices" or similar references are commonly used terms that may have different interpretations by individuals or organizations. For purposes of this document, EMA defines best practices as those practices that have been commonly and successfully used within the water and wastewater industry.

Baseline Assessment

This baseline assessment is focused on assessing the competitiveness of the O&M activities within Water Production, Wastewater Treatment, and Field Operations. The assessment also includes an analysis of customer service, meter operations, as well as administrative and back office functions.

This baseline assessment also includes an assessment of certain aspects of the business service areas as they relate to addressing the functionality of the various key software applications. These include process control, work and asset management, LIMS, and GIS. This analysis will assess whether the applications are providing appropriate level of service to meet the business needs of the Department and whether applications are supported appropriately.

Best Practice O&M Strategies

The baseline assessment is based on analysis of Grand Rapids implementation of the following eight best practice strategies. These include:

- Total Productive Operations
- Planned Maintenance
- Less Attended Facilities
- Workforce Flexibility & Interdependence

- Technology as a Strategy
- Organization as a Strategy
- Customer Service
- Assets as an Investment

A brief description of each strategy follows:

Total Productive Operations

Total Productive Operations (TPO) is the elimination of the distinction between and among various jobs and tasks such as Operations & Maintenance in a treatment plant, or between Equipment Operators and Laborers in a field crew (collection and distribution). Everyone is on the same team working towards common goals.

Under TPO in a plant, O&M staff work as one team focused on common goals. Operators are trained to do maintenance work based on the concept of CLAIR (cleaning, lubrication, adjustments, inspections and minor repairs). Meanwhile, maintenance personnel are freed up to do more core and highly skilled work. The TPO team overall performs routine maintenance activities including preventive, corrective, and condition monitoring tasks with an objective of reducing non productive time. The team eventually gets involved in continuous improvement activities resulting in improved equipment reliability.

Similarly, in the collection and distribution system, all crew members can perform water and wastewater system repairs, including set up traffic safety zones, operate equipment, and perform manual labor.

TPO also extends to operational areas that include customer service, meter related operations, as well as administrative and back office functions that are interrelated to support operations. For example, customer service functions and meter operations require tightly integrated workflows and communications in order to optimize their overall functions.

Planned Maintenance

Corrective maintenance is much more expensive to undertake than planned maintenance (PM) activities. PM maximizes productivity and can significantly reduce the cost or increase the effectiveness of maintenance. It involves planning and performing maintenance and rehabilitation in advance of equipment and/or infrastructure failure, moving from a reactive way of working to a proactive and eventually to an optimized way of carrying out work. This philosophy ensures that all assets are maintained at the appropriate level, such that equipment is neither over- or under-maintained. A mix of event driven (run to failure), preventive (based on intervals), predictive (based on reliability maintenance techniques) therefore makes sound business sense.

Planned Maintenance is based on problem prevention. It involves planning, scheduling, and performing maintenance in advance of equipment failure. Best Practices in planning and scheduling work are based on an optimal mix of planned and reactive work.

Less Attended Facilities

This strategy focuses on staffing for the base workload and reducing resources required for the off-shift, and importing resources needed for peak, weather or emergency conditions. In this way, optimum utilization of labor, equipment, and materials is achieved at the least cost.

Workforce Flexibility and Interdependence

The basic tenet of Workforce Flexibility (WFF) is the cross-training and multi-skilling of staff. Often the largest single factor in lost productivity is people waiting for other people with the right skills to perform associated tasks. WFF minimizes this waiting and increases the value of a worker's time on the job.

Customer Service

A high-performing organization is aligned around the customer (internal or external). Best practice utilities understand customer needs and expectations. They are focused on achieving high-quality service delivery.

Assets as Investments

Effective asset management is a critical link in balancing service delivery and costs to achieve and sustain customer satisfaction. It is one of the most important and yet neglected practices associated with developing a competitive organization. Asset management is simply defined as the strategic use of resources to optimize the life cycle value of assets through cost-effective designs, smart investment and financing choices, best-in-class operations and maintenance, and business-based refurbishment or replacement decisions. *The objective is to build a utility with a specific, sustainable level of service quality.*

The remaining strategies are considered enabling strategies.

Technology as Strategy

The best utilities are leading-edge users of technology as a strategy to maximize productivity and minimize costs. They systematize information so people can share it and work together to reengineer the way that tasks are performed. Work can be planned and scheduled more efficiently, staff skills and head counts can be determined based on work backlog, procurement can be greatly enhanced, and inventories controlled better. In addition, redundant entry and maintenance of data, such as in numerous separate spreadsheets, is eliminated. Necessary reports can be readily obtained from the system.

Organization as Strategy

Rapid, radical changes in large and small organizations are being accomplished through new approaches to organizing and utilizing human resources. This strategy focuses on removing organizational barriers and changing to a team-based, empowered organization.

Analysis Methodology

The baseline assessment consists of analysis and recommendations for the Grand Rapids Water System and Environmental Services Department. Findings are grouped and presented under the key business areas within the Department.

The recommendations in the assessment were developed to assist Grand Rapids Utilities in closing any gaps in efficiency that exist. These are in addition to the savings already achieved by the Utility through other programs such as the consolidation of the field operations groups and the reduction of overtime. The recommendations are also designed to deliver the management tools Utilities will need to operate in a mode of continuous improvement.

The findings are based on a compilation of information gathered through:

1. *Review of management and operations documentation;*
2. *Opinions expressed in 70 interviews with a variety of stakeholders; and*
3. *First hand observation by the assessment team of work.*

In general, a number of sources validated and corroborated issues before they were considered sufficiently reliable to form the basis of these findings. Therefore, the findings present a summary of what was learned through the assessment process but may not be factually correct at all times in all parts of the organization and operation.

In order to encourage open participation in the interviews, the interviews were conducted with the understanding that comments made would not be associated with particular individuals. To honor this commitment, detailed notes for each interview are not provided as part of this report.

Each operational area reviewed begins with a description of the current situation and organizational structure. Following the current description is a performance rating of current practices against the 8 Best Practices strategies. Ratings are noted in tabular format similar to Figure1-1 below:

	PERFORMANCE LEVEL					
	0 - Not Performed	1 - Ad Hoc	2 - Routine	3 - Uniform	4 - Managed	5 - Innovative
Best Practice Strategies						
Total Productive Operations	X					
Planned Maintenance		X				
Less Attended Facilities		X				
Workforce Flexibility and Interdependence	X					
Technology as a Strategy		X				
Organization as Strategy				X		
Customer Service				X		
Assets as Investments		X				

Figure 1-1 Ratings Format

Performance Level Rating Descriptions:

Below is a brief description of the ratings given to assess current performance levels.

0 – Not Performed – No evidence of the strategy in place

1 – Ad Hoc – Elements of strategy are evident, but not consciously or consistently managed

2 – Routine – Elements of the strategy are in place and routinely performed, but not uniformly applied by staff

3 – Uniform – The strategy is performed routinely in a uniform process, but not consistently managed

4 – Managed – Strategy is performed routinely, uniformly and is measured and improved through management initiatives

5 – Innovative – Strategy is implemented and breaking new ground for the water and wastewater industry

Calculation

The assessment methodology includes an estimation of the degree to which best practices are implemented, an estimate on what percentage of the budget is affected and a calculation of the potential savings gap that is available for recovery against the affected budget.

Results

Performance ratings described above were used as a key component to estimate the gap for the baseline assessment. In table 2-1 are the results for ESD and the Water System Gap Analysis:

Functional Area	Estimated Opportunity Gap
Water Treatment Plant	38%
Distribution	46.5%
Inventory Oak Industrial	40%
Customer Service	38.5%
Inventory, Environmental Services	15%
Sewer Maintenance	31.5%
Wastewater Plant, Lift Stations and Storm Water Maintenance	36.5%
Water Field Operations	36.5%

Table 1-1 Opportunity Gap by Area

Recommendations

Recommendations were developed upon analysis findings, current performance ratings and estimated gaps. An overarching set of recommendations is provided that includes initiatives that will affect both the Water System and ESD. Department wide recommendations are followed by more specific recommendations broken out by Water and ESD.

There are four recommendations that will provide the highest value for in closing the gap. These should be implemented first and can be started immediately. They include:

1. **Resource Loading**, This initiative quantifies the work needing to be performed to sustain operations, compared to work currently being performed. Once all work has been identified, a comparison is made to net availability and identifies current gaps.

2. **SCADA Enhancement**, This will increase the use of available functionality in the various SCADA systems. It will greatly expand the role of SCADA in Automated Operations as the systems are upgraded.

3. **Work Management System Enhancement**, This initiative will advance the use of CityWorks and Maximo throughout Enterprise Services as well as the use of additional functionality where the systems are currently in place.

4. **Skills Development**, As Enterprise Services works to close the opportunity gap staff skills will need to be developed. This is critical for two reasons;

    - First it will become progressively more difficult to close the gap (low hanging fruit early in the process),

    - Second current skill levels are matched to current modes of operation. Without upgrading skill levels it will be difficult to maintain any achieved improvements..

Details of these recommendations are included in Section 2.

EMA
Improving Performance Through
PEOPLE & IDEAS

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June 8, 2012

Pam Ritsema
City of Grand Rapids, Enterprise Services Department
50 Ottawa N.W.
Grand Rapids, MI 49503

Dear Pam:

The City of Grand Rapids, Enterprise Services Department initially undertook an improvement project to reduce operating costs while maintaining or improving services. EMA provided a proposal for a four phase roadmap to complete the project, the first phase (Phase 0.5) was recently completed. In Phase 0.5, the baseline assessment focused on assessing the competitiveness of each of the core water and wastewater functions within the organization. The assessment identified opportunities for improvement and a gap was calculated and is summarized below:

Functional Area	Estimated Opportunity Gap
Water Treatment Plant	38%
Distribution	46.5%
Inventory Oak Industrial	40%
Customer Service	38.5%
Inventory, Environmental Services	15%
Sewer Maintenance	31.5%
Wastewater Plant, Lift Stations and Storm Water Maintenance	36.5%
Water Field Operations	36.5%

The attached proposal is to complete the remaining phases (Phase 1-3) of the project. The approach is designed to assist Grand Rapids in closing the identified gap. EMA looks forward to the opportunity to work with the Department on this project. If you have any questions, please contact us.

Sincerely,

Craig Yokopenic
Executive Vice President
EMA, Inc.

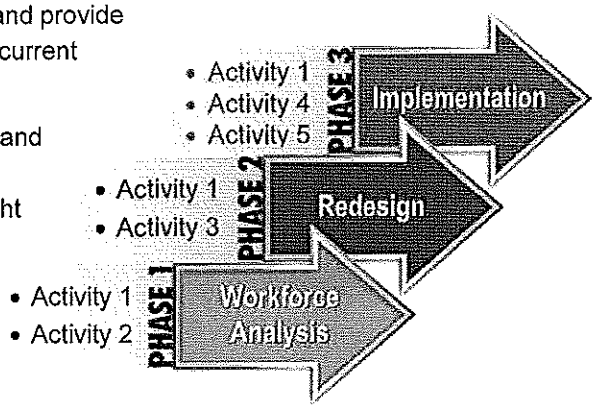
CITY OF GRAND RAPIDS ASSESSMENT (PHASE 1 – 3) & SCADA PRELIMINARY DESIGN SCOPE OF WORK

ASSESSMENT PROJECT

The City of Grand Rapids Enterprise Services Department has identified the following specific goals to be achieved in this project:

1. Improve organizational alignment through a collaborative process that involves employees and management.
2. Analyze workforce effectiveness/structure and make recommendations for improvement.
3. Identify and prioritize opportunities for improvement at the task level.
4. Provide design assistance to implement all recommendations.

We understand that this project will change how the Department works. EMA will document "current state" and along with Department staff, we will analyze and provide recommendations and designs for improvements to the current state that address goals identified above.



Due to the volume of information that must be gathered and analyzed, a three phase implementation process was developed and originally proposed. The figure to the right details the activities or steps needed to complete the 3 phases of the project. Prior to this scope of work EMA completed an assessment phase (phase .5) to determine the opportunity for improvement. The results of that assessment were previously submitted to Grand Rapids. This project will result in the closure of that opportunity gap.

One of the most demanding aspects of a project like this is assuring that recommendations address the savings goals in a way that continues to deliver the services required. There are many variables that need to be considered including staff skill levels, what work needs to be completed and how quickly, available tools and technologies for staff and managers, labor relations/contracts, and others. EMA will use a task analysis tool to identify the work that the Department needs to deliver. This provides a solid foundation on which to analyze and improve organizational effectiveness and alignment around the required tasks, improve communication of the execution and results of this work, and develop the needed training to sustain improvements.

Assessment Scope of Work

EMA will meet with Department staff to define the project schedule, required teams and interactions with staff, and specific deliverables. For this project nearly all work is performed onsite with staff in either one-on-one meetings or facilitated workshops.

Understanding workforce requirements is a must. If the workload is not well understood, improvement efforts cannot identify all of the opportunities that exist. The most effective implementation approaches may not be taken and, as a result, improvement opportunities may not be fully taken advantage of.

The key to a successful project requires identifying:

- Work tasks needed to operate safely and effectively
- Staffing levels needed to execute the identified work tasks
- Staff skills and qualifications needed to perform identified work tasks
- Communication and management tools needed to execute the work effectively and efficiently

We will provide the Department with a final report. The recommendations report will include:

- Estimated costs
- Standard Operating Procedures (SOPs) including communication SOP's
- Job descriptions and licensing requirement changes if needed
- Staffing plans, shift structures, worker deployment options, and organizational structure(s)
- Skill and training requirements (including communications, leadership, and management)
- SCADA automation and technology requirements needed to support the changes to operations and maintenance.

Activity 1 – Project Kickoff and Management

EMA will provide professional project management services throughout the engagement. Our PMI-certified project manager will ensure that we meet commitments to scope, schedule, and budget and our performance and deliverables will meet or exceed your expectations.

Task 1.1 – Maintain Detailed Project Plan, Provide Progress Reports, & Manage Project Issues

EMA will provide a project manager (John Schiebold, PMP) who will be supported by a corporate officer/Principal-in-Charge (Craig Yokopenic), to ensure that this project is delivered on time and budget and that the Departments expectations are fully addressed.

EMA will develop a detailed Microsoft® Project schedule and workshop agendas for review and approval by the Grand Rapids Project Manager. EMA will maintain the plan and schedule and provide updates to the Grand Rapids Project Manager as needed.

The EMA Project Manager will hold monthly discussions with the Grand Rapids Project Manager to review project status and issues. Together, they will conduct more formal status briefings as needed by senior management. The schedule for these formal briefings will be developed as part of the finalization of the detailed project calendar.

EMA will maintain an issues log and will include it with each status report. Should issues arise that affect the project schedule or outcomes, the EMA Project Manager will notify the Grand Rapids Project Manager immediately and will provide an issue summary and one or more recommended approaches/solutions for review as appropriate. Issues that are unresolved will be escalated using an agreed upon escalation process.

Deliverables:

EMA will provide electronic monthly status reports that include:

- Description of project/deliverable progress
- Tasks completed for the month
- Tasks planned for the following month
- Issue status
- Analyses of the budget
- Schedule performance

Task 1.2 – Project Kickoff, Orientation, and Alignment

We will work with the Grand Rapids Project Manager and project sponsor to create a clear message of expectations by the project team. Next, EMA will conduct a brief kickoff session with the project manager and project team to review the:

- Project scope and calendar
- Team roles and responsibilities
- Project expectations

We will help form a clear and consistent message that is to be delivered to all employees to help foster a mood of collaboration and an understanding of the opportunity at hand.

Deliverable:

- Kickoff meeting message development and delivery

Activity 2 – Organization Analysis

This activity will focus on the initial data collection and identify staff availability to perform and manage work, as well as their current planned workload.

Task 2.1 – Documentation Review

EMA will perform a more detailed review than completed in Phase 0.5. Information on the current operations including SOPs, management reports and regular communication mechanisms, alarm and operating logs to better understand the typical issues faced (especially on off shifts), maintenance backlog and completed work, capital projects, etc., will be used for the redesign process. Following the review, EMA will shadow staff to see examples of their day-to-day activities and challenges. With Field Operations, opportunities for improvement are often focused around drive time and proper planning. We will look to identify and document all potential opportunities for improvement. Most of the information needed for this task was provided in the Phase 0.5 Desk Audit but not analyzed to the level needed to perform changes needed to close the performance gap.

EMA will also attend staff meetings to observe the challenges with current communications. We will identify if communication is constructive in conducting business processes. We will look to identify any

underlying issues that affect the effectiveness of communication so that they can be addressed in the recommendations.

Deliverables:

- Information review
- Shadow report

Task 2.2 – Creating Data Standards

EMA will conduct a Data Standards workshop to define data standards such as task types, priorities, skill types, etc. based on your current internal language. During this session, we will also provide a closer review of the EMA Staffing Analysis tool.

To support projects like this EMA has developed a workforce analysis process that is supported by PinPoint, a web-based objectives, task, and resource analysis tool that helps utility leaders make decisions based on quantitative data.

Deliverable:

- Data Standards workshop

Task 2.3 – Identify Monthly Availability

EMA will conduct a workshop with the managers to determine work-hour standards for each position. The information will be loaded into the Staffing Analysis tool.

Deliverables:

- Availability workshop
- Data capture in Staffing Analysis tool

Task 2.4 – Identify Planned Task

EMA along with selected project team members will conduct staff interviews to identify all current planned tasks including estimated duration and frequency. These interviews will be attended by selected staff. For maintenance tasks we will review current backlog reports with managers.

Deliverables:

- Planned task identification
- Data capture in Staffing Analysis tool
- Backlog report analysis

Task 2.5 – Data Review

Once all data is collected, a preliminary electronic report will be delivered to the Grand Rapids Project Manager and project team. The team will look for glaring discrepancies of time and frequency. They will also seek missing items to be added. All changes at this point will appear in the final report as well as the Staffing Analysis tool.

Deliverables:

- Staffing confirmation workshop
- Data capture in Staffing Analysis tool

Task 2.6 – Report Current Resource Loading

A preliminary report consisting of detailed work loading tables and graphs using the "as-is" data will be delivered. At this stage, the tasks to improve organization alignment and to evaluate and improve effectiveness will be discussed and schedules will be confirmed to kick off the redesign stage. The report will be delivered along with a summary presentation to the Grand Rapids Project Manager.

Deliverable:

- Final analysis report

Activity 3 – Redesign

This task will focus on identifying and prioritizing opportunities for improvement. The selected high priority opportunities will then be assessed to identify areas where efficiency and effectiveness may be increased. The key to task analysis is the "Eliminate/Reduce/Shift/Redesign" process, which ensures each activity being performed provides maximum value to the organization before committing resources. For example, this is where Distribution and Treatment will be evaluated to determine if there are improved ways of operation.

Task 3.1 – Best Practices

EMA will deliver a one-day Best Practices Training workshop. This workshop will prepare the team for the redesign and recommendations development effort. The focus of the workshop will be on operations, maintenance, technology, communications, and management best practices.

For purposes of this project, EMA defines best practices as those practices that have been commonly and successfully within the water and wastewater utility industry to achieve clearly defined objectives.

Deliverable:

- Best Practices workshop

Task 3.2 – Opportunity Prioritization

Once all the tasks have been identified and quantified regarding their duration and frequency, they will be added to the Staffing Analysis tool for cost evaluation. Those tasks that are deemed as lower value and those that consume the highest resources will be flagged and prioritized for the Eliminate/Reduce/Shift/Redesign process.

Deliverable:

- Task list that is prioritized by frequency and duration

Task 3.3 – Perform "Eliminate/Reduce/Shift/Redesign" Process

Once tasks have been prioritized the selected task will be put through the "Eliminate/Reduce/ Shift/Redesign" process. The selected tasks will be explored in-depth to develop defensible recommendations regarding task elimination, task changes, technology purchases, staff

reorganization, or remain at status quo. The results will be captured in the Staffing Analysis tool and displayed graphically. All redesigns that require new investments will be supported by a business case that specifies the expected reduction in labor, energy and or chemical costs.

Deliverables:

- Optimized task list with updated task duration and frequencies
- Redesign project list validated with business cases

Task 3.4 – Analysis, Recommendations, and Findings Report

A final report consisting of detailed work loading tables and graphs using the "to-be" data will be delivered along with a list of proposed recommendations. Recommendations will be developed based the analysis in previous tasks and include:

Task 3.4.1 – SOP Development

EMA will assist the Department in developing operating SOPs based on the operational guidelines and the work optimization outcome. This will include direction on operations, communication, planning and scheduling of work, work execution and closeout, and management oversight and optimization.

Deliverable:

- Finalized SOPs

Task 3.4.2 – Performance Measure Development

EMA will identify Key Performance Indicators (KPIs) that will help track performance. EMA will identify data sources for such performance measures.

Deliverable:

- KPI and data source identification

Task 3.4.3 – Automation and Technology Recommendations

As part of the redesign process, EMA may identify tools and technologies to be used strategically to positively impact operations. Due to the potential cost and delays in the acquisitions of such tools and technology, EMA will be limited to providing a list of tools and technology recommendations that will be accompanied by the business cases developed earlier in this project. Additional design may need to be completed for more complex or advanced solutions.

Deliverable:

- Tools and technology recommendations list

Task 3.4.4 Staffing Plan and Organization Structure

As part of the redesign process and task optimization, the current Department staffing plan may need to be modified to meet the new operating requirements. EMA will either confirm that the existing staffing approach is adequate or we will provide the Department with an updated staffing plan for your consideration. EMA will also recommend modifications to procedures for bumping, overtime, and relief as part of this task.

Deliverable:

- Staffing plan

Task 3.4.5 – Training Requirements

Due to the potential changes in tasks, their frequencies, and their specific execution, training will need to be provided to staff that will be responsible for the ongoing execution of the new plan. EMA will work with the Department to create training plan to meet these requirements. SOPs' will play a large role in the training plan.

Deliverable:

- Training plan

Task 3.5 – Final Report

Upon completion of the analysis recommendations, EMA will deliver a final written report containing all the project task findings and recommendations. The report will be provided to the Department for review before EMA finalizes the report. If required, EMA will also provide a summarizing presentation to the appropriate stakeholders at Grand Rapids to ensure the overall project results are effectively communicated.

Deliverables:

- Final documentation
- Final report summary presentation

Activity 4 – Leadership/Management Continuous Improvement Program Assistance

Task 4.1 – Leadership/Management Needs Analysis

EMA will conduct individual interviews with senior management – typically the top level of the organization – to understand their perspective of the strengths and weaknesses of the supervisory team and identify expectations.

Each participant in the analysis will be asked to complete a survey to identify critical topic areas for continuous improvement. This survey will be administered via an internet survey tool and should take each participant less than 30 minutes to complete.

Deliverable:

- Self-assessment survey

Task 4.2 – Continuous Improvement Program Framework

We will provide a framework for continuous improvement. We will combine the program with the objectives identified in the baseline (Phase 0.5) assessment, best practice opportunities that exist, opportunities identified in Activities 1-3 above, and other external or internal drivers. Examples that the Department may wish to consider include:

1. Optimize shift design to provide greater coverage for customers and improve performance.
2. Develop advanced SOPs for energy reduction, non-routine events and adjust staff accordingly.
3. Develop mobile solutions to reduce costs and increase effectiveness.

4. Plan and schedule all non-routine operations work.
5. Reengineer all positions as attrition occurs with the goal of reducing staff

The framework will update guiding principles used to initiate and manage improvement cycles. These may include:

- Identify ways to leverage existing technologies
- Define approaches to meet Department strategy objectives
- Scan for external sources that will affect the Department
- Execute a formal program on a regular cycle

Deliverables:

- Updated framework with objective that need to be executed
- Guiding principles update

Task 4.3 – Execute Continuous Improvement Cycle

EMA will conduct up to 10 continuous improvement cycles to address opportunities for improvement. This will facilitate:

- Development of a rigorous approach to the process,
- Development of standard forms, templates, and reports that can be used on an ongoing basis
- Training of the Department staff on facilitation and execution of the process
- Development of metrics that measure whether the desired outcome (versus output) is achieved

Deliverables:

- Up to 10 completed continuous improvement cycles
- Continuous improvement rigorous approach, standard forms, templates and reports, and metrics

Activity 5 – Assistance in Implementing Future Recommendations and Other Organizational Design Activities as Needed

We will work with Grand Rapids to determine what is appropriate for the various recommendations

Project Schedule

This scope of work can be completed in 6 to 9 months depending on Department staff availability.

Project Cost

Activity	Hours	Cost
Activity 1 – Project Kickoff & Management	96	$ 18,660
Activity 2 – Organization Analysis	530	$ 94,230

Activity 3 – Redesign	645	$ 126,970
Activity 4 – Leadership/Management Continuous Improvement Assistance	260	$ 57,720
Activity 5 – Assistance in Implementing Recommendations & Other Organization Design Activities (as needed)	TBD*	TBD*
Expenses		$ 35,745
TOTAL	**1531**	**$ 333,625**

** Hours and cost for Activity 5 will be determined after the completion of Activities 1-4*

Below is a breakdown of hours and cost by department for Activities 1-4.

Department	Hours	Cost
Water	872	$ 196,403
ESD	659	$ 137,222

SCADA PRELIMINARY DESIGN SCOPE OF WORK

The following tasks outline the SCADA Preliminary Design project for the Water Department. As a part of the Assessment project listed above, the SCADA Preliminary Design project will be one of the projects identified to improve operations. In addition to the improvement in operations, this project is critical due to the current condition of the existing distribution SCADA system.

SCADA Preliminary Design

A detailed plan and timeline for execution of the SCADA Preliminary design is shown below. The detailed preliminary design is broken into the following Activities:

- Project Management/Quality Assurance
- Vision, Strategy, System Definition
- Existing Systems/ Process/Practice and Staffing Review/Analysis
- Alternatives Analysis
- Preliminary design

A description of the tasks and deliverables associated with these activities is provided. A nine-month schedule is comfortable to work through the issues in developing a preliminary design. We believe the schedule for developing the preliminary design will not impact your staff adversely while still allowing the detailed design to replace the current distribution SCADA system to start now if needed. However, there is flexibility to allow the schedule to be compressed.

The City follows the lean process methodology for making practice and organizational changes. That process can be used to evaluate and improve the SCADA/Operations work in Water. A simple example of how this process will be applied is listed below:

- Identify the current process for controlling the Water Distribution System.
- Identify the people, work tasks, and strategies to do this presently.
- Identify the specific data elements that are needed to support the workflow and how they are moved, combined, and analyzed
- Identify what technology is used to collect, present and act on the specific data elements.
- By performing the work process analysis this way it will become easier to:
  - Understand what activities or steps in the workflow are not adding value to the process requirements and can therefore be eliminated.
  - What business processes are not being done (e.g., energy optimization).
  - Opportunities where the existing or planned technologies (SCADA) are not being leveraged.

Activity 1 – Project Management/Quality Assurance

This activity commences with a kick off meeting and delivery of a project plan which describes project tasks, team members, communication protocols, schedule, deliverables, etc. EMA's Project Manager will coordinate tasks with Grand Rapids Water staff.

Project progress reports will be delivered on a monthly basis. The time frame for development of the preliminary design is limited. EMA's approach is to start writing the preliminary design early in the project as part of the Assessment project. The preliminary design will be progressively developed through a series of deliverables.

EMA's Principal-in-Charge and Project Manager will conduct quality assurance reviews throughout the preliminary design development.

Deliverables:

- Project Plan
- Coordination Meeting Minutes
- Monthly Progress Reports

Activity 2 – Vision, Strategy, System Description

This activity is critical to alignment of the preliminary design with the aspirations of the various stake holders. This activity will be conducted in two workshops as follows:

The first is the facilitation of a Vision Workshop in which the Grand Rapids vision, business goals, and strategies for the control system improvements/upgrades are developed. This workshop will also address the future vision of Grand Rapids staffing and system governance issues.

An operations model will be developed in a second work shop. This model will be developed in alignment with the vision, business goals, and strategies that were developed in the previous workshop.

Deliverables:

- Vision statement identifying goals and strategies
- Operations system model

Activity 3 – Existing Systems/Staff Resources Process Review and Gap Analysis

This Activity is a set of tasks, each of which essentially is comprised of three parts.

1. EMA will define the current situation related to the specific track
2. An analysis of the current situation will be conducted with respect to the previously defined vision and needs
3. The gap between the current situation and the future goals will be documented

It is important to understand the current situation and define the gaps between it and the future vision. Strategies are then developed to close the gaps. Much of this work will be completed by EMA staff independently and in one-on-one meetings with Grand Rapids Water staff. Structured meetings and workshops will be scheduled as necessary to gather information for analysis. The following tracks will be used to complete this Activity:

- Water Systems (Treatment and Distribution) Process Operations
- Organization Procedures and Structure
- Labor Use and Effective Monitoring
- Performance Measurement
- SCADA System Technologies
- SCADA System Operations and Maintenance Practices

Water Systems (Distribution and Treatment) Process Operations

Each water system process (within both Treatment and Distribution) will be modeled with respect to its operation. EMA will analyze the current methods of monitoring, control, and routine maintenance of each process as it is performed currently. An analysis of the effectiveness of the current system in meeting the vision will be performed. An analysis will also be performed of the system-wide approach. EMA will document any gaps that may exist.

Organization Procedures and Structure

Interviews and workshops will be conducted to document how the existing organization is structured and the procedures used to manage the water system. An evaluation will be performed on the effectiveness of this structure and procedures.

Labor Use and Effective Monitoring

Use of instrumentation and SCADA systems can yield substantial benefits in reducing low skill labor tasks and providing more effective monitoring. Site visits, interviews, and small group meetings will

be held to review how operators use their time and identify opportunities for more effective means of monitoring that will save labor.

Performance Measurements

The existing Key Performance Indicators and Web-based Dashboards will be identified. Workshops will be held to evaluate how well these meet the Vision and determine any additional KPIs and dashboards needed. The methods and effort involved in generating and disseminate the existing KPI information will also be made. A gap analysis will be developed.

SCADA System Technologies

The existing SCADA systems will be evaluated to determine its ability as a tool to realize the Vision. This will include an evaluation of the reliability, standardization, level of obsolescence, and abilities. The SCADA system included for evaluation includes:

- Instrumentation and control devices available and the information transmitted and received
- PLCs and RTUs, including programming and documentation
- Servers, associated hardware and OS and their upkeep
- HMI and Historian software and its configuration
- Alarming and notification systems and configuration
- Network components (wired and wireless) as well as switches, firewalls, and associated configuration
- Data Warehousing including servers, databases, interfaces with other applications, presentation and reporting systems

SCADA System Operations and Maintenance Practices

Organizational staffing structure and procedures for enhancing and maintaining the SCADA system components will be analyzed in relationship to existing systems, envisioned technologies. The skill level of the present staff will be evaluated and compared to the skills envisioned with respect to the vision and needs of the future.

Prepare Gap Analysis Report

The final task of this activity rolls up the work of the previous existing systems analysis tasks and defines the gaps between existing systems and envisioned requirements. This information provides the basis for definition of incremental systems, process and organizational needs to achieve components of the Vision.

Deliverables:

A gap analysis report will be produced that contains a roll-up of the following:

- Technical Memorandum: Water System Operations Current Practices and Gap Analysis
- Memorandum: Existing Organizational Procedure and Structure and Gap Analysis
- Memorandum: Existing Labor Use and Effective Monitoring and Gap Analysis

- Technical Memorandum: Existing Performance Monitoring and Analysis Reporting and Analysis of Gap
- Technical Memorandum: Control System Technologies: Assessment of Current System and Gap Analysis
- Technical Memorandum: Control System Operations and Maintenance Practices Current Situation and Gap Analysis

Activity 4 – Alternatives Analysis

The next step in development of the preliminary design is identification of alternatives to meet the requirements defined in the Gap Analysis Report of the previous Activity. This phase of the work will be conducted in two general steps. The first will establish an initial matrix of alternatives which will be presented to Grand Rapids Water Department in a series of workshops. The second step is refinement of the alternatives and establishment of specific projects and a migration path. The work is further discussed below.

Initial Alternatives Analysis: EMA will prepare matrices of potential alternatives in the general categories listed below. Costs, benefits, and risks for each alternative will be defined.

- Water Systems Operations, Operations Control Room, and Systems Optimization Options
- Data Communication and Networking Options
- Automation Alternatives
- SCADA Technology Options

These initial alternatives will be first documented in technical memos and presented to Grand Rapids in workshops. Included will be cost estimates, risk analysis and benefits summary for each alternative analyzed. After feedback from the workshops a Draft #1 Alternatives Analysis Report will be submitted.

Alternative Refinement Workshops: EMA will present a series of workshops to discuss the refined alternatives. These workshops will include revised cost/benefit/risk analysis as well as recommendations for a series of projects/initiatives that will form a migration path. The refined alternatives will be submitted to Grand Rapids in technical memos. Based on feedback obtained during workshops the technical memos will be revised and resubmitted in the form of a Draft #2 Alternatives Analysis Report. This Draft #2 report will include recommendations for **Policy, Practices, and Standards** for adoption by Grand Rapids Water Department as the migration from the existing systems to the technologies and practices of the future are implemented. Following feedback on the Draft #2 Alternatives Analysis Report a Final Alternative Analysis Report will be submitted. This report will include updates to the recommendations for **Policies, Practices and Standards.**

Deliverables

- Technical Memorandum – Identifying initial alternatives analysis matrices
- Draft #1 - Alternative Analysis Report
- Draft #2 - Alternative Analysis Report

Activity 5 – SCADA Preliminary Design Report

The final activity in development of the Preliminary Design is incorporation of previously developed deliverables into a Preliminary Design Report (PDR). As previously noted, the components of the Preliminary Design were developed throughout the process. The only new element in this document is development of a plan which defines the transition approach and schedule from the current period to the Vision. Projects associated with the PDR will be defined, budgets prepared, fiscal year cash flow created, and implementation schedule with transition plan illustrated. This PDR will be released in draft form and presented to Grand Rapids staff. After comments are received, a Final PDR Document will be prepared and delivered. A solid foundation will be built, upon which development and integration of new technologies, organization and practices can be accomplished in alignment with the vision identified by Grand Rapids staff.

Deliverables:

- Draft Preliminary Design Report
- Final Preliminary Design Report

Proposed Cost and Schedule

EMA proposes to provide the SCADA Preliminary Design Report for a lump sum fee of $100,000. We will complete the work in an agreed upon time period developed during the kick off meeting. A nine-month schedule is comfortable to work through the issues in developing a preliminary design.

RETURN ON INVESTMENT FOR ASSESSMENT AND SCADA PRELIMINARY DESIGN PROJECTS

In Phase 0.5 – Baseline Assessment, EMA identified opportunities for improvement and a gap was calculated. To address the identified gaps, EMA proposes Assessment Phases 1-3 and the SCADA Preliminary Design projects to help Grand Rapids reduce the identified gap and realize savings from improved operations and more efficient work processes.

EMA will identify 3 types of projects to reduce the gap and start realizing the savings:

1. **Quick Wins:** Changes that can be implemented within a short period of time with minimal investment.
2. **Internally-Influenced Projects:** Changes that may take longer to implement and require some funding, but which can be wholly implemented by management without outside funding or permission.
3. **Externally-Influenced Projects:** Changes that take the longest to implement. Require non-budgeted funding or changes to policies and/or contracts.

All of these projects will have identified reductions in the operating budget of the Enterprise Services Department.